

**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT NUMBER 1000047**

I. INTRODUCTION

This permit is for the operation of a copper smelting unit in San Manuel, Pinal County, Arizona. This smelting facility is owned and operated by BHP Copper.

A. Company Information

Facility Name: San Manuel Smelting Operations
Mailing Address: P.O.Box M, 200 S. Reddington Road, San Manuel,
Arizona-85631
Facility Address: 200 S. Reddington Road, San Manuel, Arizona-85631

B. Attainment Classification (Source: 40 CFR §81.303)

PM-10: Unclassified
SO_x: Nonattainment
CO: Unclassified/Attainment
Ozone: Unclassified/Attainment
NO_x: Unclassified/Attainment

II. PROCESS DESCRIPTION

The plant uses an Outokumpu flash furnace for smelting. Incoming concentrate material, after being dried in a rotary kiln dryer, is fed to the flash furnace. Silica flux used in the process is produced in the Lime and Flux plant. The furnace reactions require the use of air which is enriched to a range of 45 to 70% oxygen. An oxygen plant supplies a product that is 98% oxygen. This is piped (as a low pressure gas) to the furnace area and blended with air to supply the concentration required by the flash smelter.

The furnace produces “matte”, containing approximately 63 percent copper, which is transferred by ladles to Peirce-Smith converters. The furnace also produces slag, which is transferred by Kress slag haulers to cooling pits, and then to the San Manuel concentrator. The slag concentrate from the concentrator is recycled back to the flash furnace.

Heat energy, produced by the furnace reactions, is recovered using a waste heat recovery boiler. The boiler feedwater (which must be demineralized and deaerated) is supplied from the power plant. This water (which makes up the steam produced and the boiler blowdown)

is added to the steam drum. Steam produced in the waste heat boiler and separated from the boiler circulating water in the steam drum is sent to the superheater. The superheated steam is returned to the power plant.

The process gas from the furnace (after being cooled in the waste heat boiler and cleaned by electrostatic precipitators) is sent to the acid plant where the sulfur dioxide produced by the reactions in the furnace is converted into a concentrated sulfuric acid product. The smelting furnace also produces a fugitive gas (with trace amounts of sulfur dioxide) during furnace matte and slag tapping operations. This fugitive gas is collected and passed through an electrostatic precipitator to remove dust and is then vented to the atmosphere via the reverberatory stack.

There are four converters at the San Manuel facility. Typically, three are operated at any one time, with the fourth converter down for normal repair. In this mode, one converter is operating on slag blow, one on copper blow and one on turnaround/receiving matte. The terms "slag blow" and "copper blow" refer to the two-stage process. Slag blow refers to the stage where the iron is oxidized and forms the slag which is poured from the surface of the vessel. The second stage called the copper blow oxidizes the remaining sulfur.

The converter processes the matte from the flash furnace and produces "blister copper" which is over 99% copper. During the slag and copper blow operations, the primary hood draws out the process gases which is subsequently cleaned in lurgi scrubbers and passed to the acid plant for further treatment. To capture converter fugitive gas when the converter is out of the stack, a secondary hood system is utilized. The hoods enclose the converter mouth, carrying gas to a collection duct, through an induced draft fan and to an electrostatic precipitator from where its cleaned and vented out. Converter secondary hood gas cleaning solids are recycled back to the flash furnace. Molten converter slag is transferred by ladles to cooling pits and is then transferred to the concentrator.

The blister copper is transferred by ladles to anode furnaces where the fire refining process is carried out. The process includes a conventional oxidation stage for the removal of sulfur and a natural gas poling stage for the reduction of oxygen. Air is blown through the tuyeres and into the molten copper to oxidize sulfur and lower the concentration from approximately 150 ppm to less than 25 ppm. Samples are taken to determine when the sulfur levels are acceptable, at which time the oxidation stage is complete. Natural gas is then blown through the tuyeres and into the molten copper to reduce oxygen and lower the concentration from approximately 6000 ppm to 1800-2200 ppm. A sample is taken and analyzed to ensure that its within specifications for further processing. If specifications are met, the copper is ready for casting.

Copper is poured from #1 and #2 anode vessels into a launder which feeds an intermediate

casting ladle which in turn feeds two casting spoons. The casting spoons, ladles, and launders consist of a steel shell lined with chrome magnesite brick and alumina based castable refractory. Molten copper is cast into anode molds which are positioned in one of two wheels (45 ft and 34 ft in diameter). The cast anodes are then processed in an AISCO machine which consists of a carousel with various sections which weigh and hydraulically press the anodes to the necessary shape and form.

The cast anodes are then transported to the electrolytic refining plant where the impure copper anodes are refined by electrolysis in an electrolyte containing weak sulfuric acid and copper sulfate. Pure copper which is deposited at the cathode is removed from the cell, washed, weighed, and shipped to the rod plant or outside customers. In the rod plant, pure copper is continuously cast into a continuously moving mold. Progressively smaller rolling mills reduce the initially cast bar from 7 square inches to a round solid copper rod at 5/16" in diameter. The anode slime is washed from the bottom of the cell, allowed to settle in a tank, and then pumped as a slurry to the leaching tanks. Sulfuric acid is used to leach the copper content from the slime. The resulting decopperized slime is filtered, washed, dried, and packaged for shipment to the customer.

III. EMISSIONS

The facility is classified as a Major Source pursuant to A.A.C. R18-2-101.61. The potential emission rates of the following pollutants are greater than major source thresholds: (i) particulate matter with an aerodynamic diameter less than 10 microns, (ii) sulfur dioxide, (iii) nitrogen oxides, (iv) carbon monoxide, and (v) hazardous air pollutants.

IV. COMPLIANCE HISTORY

A. Testing & Inspections

Inspections have been conducted on this source to ensure compliance with the permit conditions. Table 1 summarizes some of the recent inspections that have been conducted on the source and the results of the inspections.

Table 1:

Inspection date	Type of inspection	Results
4/6/99	Level one	Testing for particulates and metals in Acid plant #3, acid plant #2, flash fugitive stack, and converter secondary hood stack. Passed all tests.
1/12/99 to 1/16/99	Level one	Passed testing for particulates and metals on dryer exhaust stack, flash furnace fugitive stack, converter fugitive stack, acid train #2, and acid train #3.
10/21/98	Level one	Passed RATA testing performed on the dryer exhaust stack.
10/16/98	Level one	Passed cylinder gas audits performed with roof monitors 1,2, and 3.
10/14/98	Level one	Passed testing for particulates and metals in the concentrate dryer stack. Certification of the sulfur dioxide and flow monitors on the flash fugitive converter- the final sulfur dioxide relative accuracy result was 11.6% (Performance spec requires a result of less than 20%). Successful accuracy tests were also performed on the sulfur dioxide and flow monitors associated with acid plant #3. Results showed the relative accuracy at 4%.
10/8/98	Level one	Passed RATA was performed for the sulfur dioxide monitoring system for the converter fugitive stack.
10/6/98	Level one	Passed RATA testing for nitrogen oxides on Number 8 boiler
2/19/98	Level one	Passed NO _x test on # 9 boiler.
1/7/98..1/14/98	Level one	Passed testing for particulates and metals on dryer exhaust stack, flash furnace fugitive stack, converter fugitive stack, acid train #2, and acid train #3.

C. Excess Emissions

Some recent reports of “Excess Emissions” are outlined in Table 2 below.

Table 2:

Date	Excess emission reported	Cause
5/1/99	100 % opacity from the waste heat boiler emergency stack	Shutdown for furnace rebuild as authorized by Significant Revision #1000681
4/29/99	100 % opacity from the converter stack	Process equipment malfunction. Acid plant was bypassed
4/28/99	100% opacity from the converter stack	ESP malfunction
4/21/99	100% opacity from the converter stack	2C ESP bypassed

Date	Excess emission reported	Cause
4/19/99	100% opacity from the converter stack	Process equipment malfunction
4/18/99	100% opacity from the FSF bypass stack	Process equipment malfunction
4/15/99	100% opacity from the converter stack	Process control problems
4/7/99	100% opacity from the converter stack	2C ESP malfunction
4/6/99	100% opacity from FSF bypass/converter fugitives	Air pollution control malfunction
3/25/99	100% opacity from the FSF bypass converter stack	Process equipment malfunction
3/18/99	100% opacity from Flash furnace bypass stack	Flash furnace was shutdown to repair a boiler
3/12/99	100% opacity from Flash furnace bypass stack	Acid plant bypassed
3/8/99	100% opacity from Flash furnace bypass stack	Repairs- Routine/scheduled maintenance
3/5/99	100% opacity from Flash furnace bypass stack	Acid plant bypassed
2/22/99	100% opacity from Flash furnace bypass stack	Process equipment malfunction
2/15/99	100% opacity from Flash furnace bypass stack	Air pollution control malfunction
2/6/99	100% opacity from Flash furnace bypass stack	Shutdown of flash furnace
2/4/99	100% opacity from Flash furnace bypass/emergency WHB stack	Acid plant was bypassed as FSF was down to repair the associated ducts
1/24/99	100% opacity from converter bypass stack	Process equipment malfunction
1/24/99	100% opacity flash furnace bypass stack	Acid plant bypassed
1/18/99	677 ppm of sulfur dioxide from acid plant train #3	Process equipment malfunction- Catalytic converter temperature reduced below planned levels
1/18/99	100 % opacity from flash furnace bypass stack	Compressor malfunction
1/3/99	100% opacity from flash furnace bypass stack	Acid plant bypassed

V. APPLICABLE REGULATIONS VERIFICATION

Table 3 identifies the applicable regulations corresponding to every process unit and also provides verification as to why that standard applies.

Table 3:

Unit/Unit ID	Date of manufacture/ rebuild	Type of control	Applicable Regulations (*)	Verification
Concentrate dryer (S-31)	After October 16, 1974	Baghouse	<u>C.F.R.'s</u> 40 CFR 60.162 40 CFR 60.164(a) 40 CFR 60.165(b)(1) 40 CFR 60.165(d)(1) 40 CFR 52.126(b)(1) <u>A.A.C.</u> R18-2-715.F.1 R18-2-715.01.A R18-2-715.01.K	After NSPS trigger date (October 16, 1974). Affected facility as defined in Subpart P of NSPS.
Lime plant: lime plant jaw crusher (S-17), lime plant secondary crusher (S-18), lime plant storage (S-19), lime kiln (S-20)		Wet scrubbers on S-17, S-18, S-19, and S-20	<u>A.A.C.</u> R18-2-720.B R18-2-720.D R18-2-720.E R18-2-702.B 40 CFR 52.126(b)(1) <i>and other standards applicable to non point sources</i> <u>Pinal County Code</u> 5-31-2022.A 5-31-2022.B 5-31-2022.C 5-31-2022.D 5-31-2022.E	“Affected facilities” as defined in R18-2-720.A. Lime storage plant will be subject to R18-2-702.B
Flux circuit: flux grinding (S-21), flux screening and conveying (S-22)	After August 31, 1983	Baghouses on S-21 and S-22	<u>C.F.R.'s</u> 40 CFR 60.672(a) 40 CFR 60.672(b) 40 CFR 52.126(b)(1)	After NSPS trigger date. “Affected facilities” as defined in Subpart OOO of NSPS.
Flash furnace: Acid plant tail stack II (S-3), Acid plant tail stack III (S-4), and flash furnace fugitive stack (S-5), Emergency Vent No. 2 (S-6), WHB Emergency Vent (S-13), and FSF Emergency Vent No. 2 (S-14)	After October 16, 1974	Process gases cleaned by ESP and passed on to the acid plant. Off-gases cleaned by ESP and vented out from the flash furnace fugitive stack.	<u>C.F.R.'s</u> 40 CFR 60.163(a) 40 CFR 60.164(b) 40 CFR 60.165(a) 40 CFR 60.165(b)(2) 40 CFR 60.165(d)(2) 40 CFR 52.126(b)(1) <u>A.A.C.</u> R18-2-715.F.1 R18-2-715.01.A R18-2-715.01.K	After NSPS trigger date (October 16, 1974). Affected facility as defined in Subpart P of NSPS.

Unit/Unit ID	Date of manufacture/ rebuild	Type of control	Applicable Regulations (*)	Verification
Converter: Acid plant tail stack II (S-3), Acid plant tail stack III (S-4), Converter secondary hood stack/Flash furnace emergency vent # 2 (S-6), and converter aisle roof vent fans (NPS-7)	After October 16, 1974	Gases captured by the primary hood are cleaned by lurgi scrubbers are passed on to the acid plant. Gases captured by the secondary hood are cleaned by an ESP and vented through the converter secondary hood stack.	<u>C.F.R.'s</u> <i>40 CFR 60.163(a)</i> <i>40 CFR 60.164(b)</i> <i>40 CFR 60.165(a)</i> <i>40 CFR 60.165(b)(2)</i> <i>40 CFR 60.165(d)(2)</i> <i>40 CFR 52.126(b)(1)</i> <u>A.A.C.</u> <i>R18-2-715.F.1</i> <i>R18-2-715.01.A</i> <i>R18-2-715.01.K</i>	After NSPS trigger date (October 16, 1974). Affected facility as defined in Subpart P of NSPS.
Powerhouse boiler 7 (S-11) and Powerhouse boiler 8 (S-12)	After June 19, 1984.	Low NO _x burners	<u>C.F.R</u> <i>40 CFR 60.44(b)</i>	After NSPS trigger date of June 19, 1984.
Powerhouse boiler 9 (S-38)	After June 9, 1989	Low NO _x burners	<u>C.F.R</u> <i>40 CFR 60.47c</i> <i>40 CFR 60.48c(b)</i>	After NSPS trigger date of June 9, 1989.
Other fuel burning equipment: Powerhouse superheater (S-15), Rod plant shaft furnace (S-23), Refinery boiler No 1 (S-25), Refinery boiler NO 2 (S-26), Acid plant Train II Preheater (S-30), Acid plant Train III Preheater (S-8), and Powerhouse Boiler No 6 (S-10)		None	<u>ADEQ A.A.C.</u> <i>R18-2-724.C</i> <i>R18-2-724.E</i> <i>R18-2-724.F</i> <i>R18-2-724.G</i> <i>R18-2-724.I</i> <i>R18-2-724.J</i> <u>Pinal County Code:</u> <i>5-21-930.C.1</i>	Aggregate heat capacity in excess of 500,000 Btu/hr, hence subject to -724.

Unit/Unit ID	Date of manufacture/ rebuild	Type of control	Applicable Regulations (*)	Verification
Anode and utility vessels (NPS-40)		Steam injection systems	Previous permit conditions	Installation and maintenance of steam injection systems required by significant revision #1000681 to net out of PSD review.
Electrolytic refining: Refining cell, Anode slime processing (S-9), autoclave, and Selenium leach circuit			<u>ADEQ (A.A.C.)</u> <i>R18-2-730.D</i> <i>R18-2-730.F</i> <i>R18-2-730.G</i> <i>R18-2-702.B</i> <u>Pinal County Code:</u> <i>5-24-1030.D</i> <i>5-24-1030.F</i> <i>5-24-1030.G</i>	These units are not covered by any specific existing source standard. They are, hence, regulated as unclassified sources.
Slag crushing, screening, and magnetic separation circuit (NPS-32)		Water misting sprays	<u>ADEQ (A.A.C.)</u> <i>R18-2-702.B</i> <i>R81-2-702.E</i> <i>R18-2-721.B</i> <i>R18-2-721.F</i> <i>and other standards applicable to non point sources</i> <u>Arizona SIP</u> <i>R9-3-521.A.2</i> <u>Pinal County Code:</u> <i>5-32-2032.A</i> <i>5-32-2032.C</i>	<p>All units listed are “affected facilities” as defined by R18-2-721.A.</p> <p>The process weight rate eqn from the Arizona SIP will be the standard because it is more stringent than the requirement in the A.A.C.</p>
Flue dust leach circuit: truck dust dump bins (S-40), dust slurry tanks (S-41), and liquid solids separation (S-42, S-43)	After August 24, 1982	2 Baghouses and 2 wet scrubbers	<u>C.F.R.’s</u> <i>40 CFR 60.382</i> <i>40 CFR 60.384</i> <i>40 CFR 60.385</i> <i>40 CFR 60.386</i> <i>40 CFR 52.126(b)(1)</i>	After the trigger date for Subpart LL (August 24, 1982)

Unit/Unit ID	Date of manufacture/ rebuild	Type of control	Applicable Regulations (*)	Verification
Non point sources: concentrate storage (NPS-41), concentrate handling (NPS-42), revert processing (NPS-48), driveways, parking lots, and vacant lots, open area construction, reparation, earth excavation, roadway construction, repair or reconstruction, material transportation, material handling, storage piles, stacking and reclaiming machinery at storage piles, site and roadway cleaning.	N/A	None	<u>ADEQ (A.A.C.)</u> <i>R18-2-604.A</i> <i>R18-2-604.B</i> <i>R18-2-605</i> <i>R18-2-606</i> <i>R18-2-607</i> <i>R18-2-608</i> <i>R18-2-610</i> <u>Pinal County Code:</u> <i>4-2-040.A</i> <i>4-2-040.B</i> <i>4-2-040.E</i> <i>4-2-040.F</i> <i>4-2-040.G</i> <i>4-2-040.I</i>	The regulations listed are applicable to non point sources.
Mobile Sources	N/A	None	<u>ADEQ (A.A.C.)</u> <i>R18-2-801</i> <i>R18-2-804</i>	These regulations are applicable to all mobile sources.
Other periodic activities (abrasive blasting, spray painting, renovation operations, air conditioner repairs...)	N/A	None	<u>ADEQ (A.A.C.)</u> <i>R18-2-726 (sand blasting operations)</i> <i>R18-2-727 (spray painting operations)</i> <i>R18-2-1101.A.8 (NESHAPS for asbestos)</i> <u>CFR's</u> <i>40 CFR 82- Subpart F- Protection of Stratospheric ozone.</i>	Relevant requirements applicable to the periodic activities.
Miscellaneous storage tanks	N/A	None	<u>ADEQ (A.A.C.)</u> <i>R18-2-730.D</i> <i>R18-2-730.F</i> <i>R18-2-730.G</i> <u>Pinal County Code:</u> <i>5-24-1030.D</i> <i>5-24-1030.F</i> <i>5-24-1030.G</i>	These units are not covered by any specific existing source standard. They are, hence, regulated as unclassified sources.

Unit/Unit ID	Date of manufacture/ rebuild	Type of control	Applicable Regulations (*)	Verification
Ambient Monitors	N/A		<u>ADEQ (A.A.C.)</u> <i>R18-2-202.A</i> <i>R18-2-202.B</i> <i>R18-2-715.02.E</i> <i>R18-2-215.A</i> <i>R18-2-215.B</i> <i>R18-2-215.C</i> <i>R18-2-216.A</i> <i>R18-2-216.B</i> <i>R18-2-219.A</i> <i>R18-2-219.B</i> <i>R18-2-219.C.1</i>	Ambient air quality standards and requirement to operate ambient monitors

* During the evaluation of the applicable requirements, relevant ADEQ and Pinal County rules were considered and it was determined that the applicable requirements were either “identical” or the ADEQ regulations were more stringent.

VI. PREVIOUS PERMIT CONDITIONS

Table 4 outlines the permits that have been issued to the source. Subsequent tables cross reference the previous permit conditions to their location in the new permit. If a condition from the previous permit is deleted or if a new standard becomes applicable, comments are provided explaining the reasoning for the same.

Table 4: Previous permits

Date when permit issued	Permit #	Application basis
2/1/83	0278-83	Operating permit
8/28/84	0311-85	Operating permit
2/20/87	1198	Installation permit for flash smelting furnace
10/7/87	0355-88	Operating permit
3/31/92	1236	Installation permit for flue dust leach circuit
8/28/92	1241	Installation permit (No 3 converter upgrade and Acid Plant # 3 installation)
3/4/93	21136	Installation permit for powerhouse boilers
5/13/94	M210102	Application withdrawn/returned
9/18/96	1000218	Significant revision to Permit # 1241 and Permit # 0355-88
11/15/96	1000521	Minor revision to Operating Permit # 0355-88

Date when permit issued	Permit #	Application basis
6/16/97	1000509	Minor permit revision to Installation Permit #1241
6/19/97	1000594	Permit transfer
12/2/97	1000685	Minor revision to permit # 0355-88
1/22/98	1000741	Application for minor revision- Application withdrawn/returned
3/24/98	1000681	Significant revision to Operating Permit # 0355-88 and Installation Permit # 1241
4/1/98	1000718	Minor revision to operating permit # 1000594
8/28/98	2101P-99	Application withdrawn/returned
11/11/98	1000459	Minor permit revision to Operating Permit 0355-88
4/21/99	1000922	Significant revision to 1241
7/23/2001	1001582	Significant revision to 0355-88

Permit # 1198

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att A.A				x	Operating hours for the flux preparation circuit.
Att A.B	x				Construction schedule for flash smelter,dryer, waste heat boiler e.t.c.
Att A.C			x		Air pollution control requirements
Att A.D			x		Performance testing requirements
Att A.E	x				Expiry date for permit

Permit #0355-88

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att A.I			x		Reporting requirements will be revised and presented in both Att A and B of the Title V permit.

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att A.II & Att B.III			x		Excess emissions reporting requirements
Att B.IV			x		Initial performance testing requirements will be deleted. Testing requirements for different process sources will be tailored to monitor compliance with applicable standards.
Att A.V & Att A.VI	x				Requirement for an ambient fine particulate study
Att A.VII			x		Permit revocation will be addressed in Att A of the Title V permit
Att A.VIII & Att A.IX	x				Violations of permit terms and penalties

Permit #1236

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att A			x		Latest version of Att A will be used.
Att B.I		x			Applicable requirements
Att B.II.A		x			Particulate matter standard for flue dust leach circuit
Att B.II.B		x			Opacity standard for flue dust leach circuit
Att B.II.C	x				Max allowables in Att C are based on PTE's and not any applicable requirement.
Att B.III			x		Performance testing requirements for controls associated with flue dust leach circuit.

Permit #1241

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att A			x		Most recent version of Att A will be used.
Att B.I			x		All applicable requirements will be identified in the Title V permit.
Att B.II.A		x			Sulfur dioxide limit for acid plant III tailgas.
Att B.II.B		x			Multi point rollback

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.II.C		x			Opacity limit for smelter process sources
Att B.II.D			x		Emission caps for sulfur dioxide, PM-10 and HAP's.
Att B.II.E		x			Converter roof monitor requirement
Att B.III		x			Stack sampling requirement
Att B.IV			x		Performance testing requirement
Att B.V.		x			Requirements for CEM's to measure sulfur dioxide concentration and volumetric flowrates.
Att B.VI.A		x			Excess emissions reporting
Att B.VI.B		x			Recordkeeping requirements
Att B.VI.C		x			Compliance certifications
Att B.VI.D		x			Excess emissions reporting
Att B.VII				x	Ambient monitoring requirement

Permit #21136

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att A			x		Most recent version of Att A will be used.
Att B.I		x			Applicable requirements
Att B.II.A			x		The nitrogen oxide emission limit will be revised to read 0.10 lb/MMBtu instead of 0.12.
Att B.II.B		x			Averaging times for using CEM data
Att B.II.C	x				Maximum allowables for the boilers are based on PTE rather than an applicable emission limitation
Att B.III			x		Performance testing requirements will be revised to delete initial performance testing requirements
Att B.IV.A		x			CEM requirement

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.1V.B			x		Delete initial QA/AC plan for the CEM's. Annual RATA will be retained.
Att B.V		x			Annual limit on natural gas usage in the two boilers
Att B.VII			x		Recordkeeping and reporting requirements

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Permit # 1000218

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.X.A.1 & X.A.2		x			Voluntary limitations taken on fuel usage & used oil specifications for Boiler #9 to avoid New Source Review.
Att B.X.A.3		x			Voluntary limitation (also a material permit condition) for low NO _x burners and flue gas recirculation in Boiler #9.
Att B.X.A.4	x				Initial performance testing for Boiler #9
Att B.X.B		x			Hourly NO _x limit for Boiler #9
Att B.X.C.1		x			Sulfur content in fuel for Boiler #9
Att B.X.C.2	x				Requirement for initial performance test
Att B.X.D.1		x			Particulate matter limitations for Boiler #9 from Subpart Dc
Att B.X.D.2	x				Initial performance testing for PM
Att B.X.E				x	Recordkeeping/Reporting requirement for fuel usage
Att B.XI.A	x				Initial performance test for concentrate dryer
Att B.XI.B		x			Particulate matter emission limit for dryer exhaust stack
Att B.XI.C		x			Opacity limit for dryer stack
Att B.XI.D		x			COMS requirement for dryer
Att B.XI.E			x		Requirement for initial certification of the COMS will be deleted; Requirement for annual QA/QC spec procedures will be incorporated.

Permit #1000521

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.I			x		Enforcement action for non-compliance will be addressed in Att A
Att B.II.A		x			Material permit condition to vent off gases from the selenium reduction tanks to the acid plants
Att B.II.B		x			Even with the emissions from the slime handling system, emission cap from #1241 will still be applicable.

Permit # 1000509

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.I	x				Requirement addressing enforcement action for non compliance with permit terms
Att B.II.A		x			Permit requirement for a CEM for the dryer
Att B.II.B	x				Initial QA/QC procedures for the dryer CEM
Att B.III		x			Monitoring/averaging time frames for CEM data
Att B.IV	x				Initial testing requirements to make sure that the dryer CEM meets the performance specification requirements
Att B.V	x				QA/AC procedures shall be required to be performed in accordance with 40 CFR 60, Appendix F
Att B.VI		x			Recordkeeping provisions pursuant to R18-2-715.01(K)

Permit # 1000685

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.I.1		x			Particulate matter emission standard for the crushing and screening facility which is used to size the matte to be reintroduced into the flash smelter.

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.I.2		x			Requirement to operate the water sprays in the crushing & screening unit and also to route uncaptured emissions to the Flue Dust Leach Circuit dust collector.
Att B.I.3		x			40% opacity standard for the flue dust leach circuit dust collector.
Att B.II		x			Requirement to record the hours of operation and the amount of material processed in the crushing and screening facility.

Permit # 1000681

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att D.I	x				Relationship of permit to applicable SIP's
Att D.II.A		x			Sulfur dioxide limit of 2073 tpy in the dryer to avoid NSR/PSD review for the upgrade
Att D.II.B		x			Acid plant tailgas Nox limit to be 7.33 ppm- to avoid NSR/PSD review for the upgrade
Att D.C.1		x			Natural gas usage limit for fuel burning equipment to avoid NSR/PSD review for the upgrade
Att D.C.2		x			Fuel oil #2 limit to avoid NSR/PSD review for the upgrade
Att D.D		x			Particulate emissions limit for the concentrate dryer stack
Att D.E		x			Particulate emissions limit from the anode furnaces at 622.4 tpy.
Att D.III	x				"Excess emissions" and associated reporting requirements will be presented in Att A of the Title V permit
Att D.IV.A		x			Requirement to operate a steam injection system on the anode furnaces and utility vessels.
Att D.IV.B	x				Requirement to install a covered concentrate storage building- this has been done, so requirement is deleted

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att D.V.A		x			Requirement to operate measurement devices to record steam flow to steam injection system
Att D.V.B		x			CEM to measure sulfur dioxide emissions from dryer
Att D.V.C		x			QA/QC procedures for CEM
Att D.VI.A		x			Recordkeep steam flow to the steam injection system
Att D.VI.B		x			Recordkeep natural gas usage in concentrate dryer, converter combustion, utility vessels, anode vessels, acid plant preheaters, rod plant shaft furnace, and rod plant thermal emissions breaker
Att D.VI.C		x			Recordkeep fuel oil usage
Att D.VI.D		x			5 years recordkeeping will be an Att A requirement
Att D.VII.A			x		Testing requirement for Nox from the acid plant tailgas will be based on site operations/inspections
Att D.VII.B			x		Annual PM testing for the dryer pursuant to sig rev 1000922
Att D.VII.C			x		General Performance testing requirement will be addressed in Att A of the Title V permit.
Att D.VIII.A	x				Requirement for a one time emissions comparisons report before and after the smelter upgrade is performed.
Att D.VIII.B	x				Requirement to report the installation of the covered concentrate storage building has been met.
Att D.VIII.C		x			Quarterly reporting of natural gas usage
Att D.VIII.D		x			Quarterly reporting of fuel oil usage

Permit # 1000718

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.I.1	x				Equipment covered by this revision has been installed.
Att B.I.2 & Att B.1.5			x		Requirement to continuously operate the misting sprays will be provided in the Title V permit.
Att B.1.3		x			Particulate matter emissions limit for the slag handling process equipment
Att B.I.6		x			Opacity limit for the slag handling circuit
Att B.II.1		x			Requirement to record the daily operating hours and amount of material processed for the slag handling equipment
Att B.II.2			x		Record pr drop in the water mister pump circuit to verify if the misters are operated in the right range

Permit # 1000459

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
I		x			Opacity standard for fugitive emission sources

Permit # 1000922

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.II.D			x		Overall emission caps retained for sulfur dioxide and HAP's. The individual limits for PM-10 will be revised in the Title V permit and presented as an overall limit
Att B.IV.A		x			Quarterly HAP testing
Att B.IV.B		x			Annual RATA for sulfur dioxide CEM's. CGA for the converter roof monitor

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.IV.C		x			Annual testing for PM-10

Permit #1001582

Permit condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Att B.I		x			Voluntarily accepted emission limits for sulfur dioxide (annual averages and 3-hour limits)-stacks and fugitives
Att B.II		x			Air Pollution Control Requirements for the flash smelter and the converter
Att B.III		x			CEM operation and associated QA/QC Compliance demonstration for emission limits
Att B.IV		x			Ambient monitoring network requirement

VII. PERIODIC MONITORING REQUIREMENTS**A. Bi-weekly opacity monitoring (for non-NSPS scrubbers and baghouses)**

The Permittee is required to establish a baseline opacity level at the exit of each air pollution control equipment under normal representative operating conditions. The Permittee is required to make a bi-weekly survey of the visible emissions from the emission units including fugitive emissions. The Permittee is required to create a record of the date on which the survey was taken, the name of the observer, and the results of the survey. If the visible emissions do not appear to exceed the baseline opacity level, the Permittee would note in the record that the visible emissions were below the baseline opacity, and it did not require a Method 9 to be performed.

If the Permittee finds that on an instantaneous basis the visible emissions are in excess of the baseline opacity level but are below the opacity standard, then he is required to make a six-minute Method 9 observation. If this observation indicates opacity in excess of the baseline opacity level but is below the opacity standard then the Permittee is required to adjust or repair the controls or the equipment to bring the opacity to or below baseline level.

If the six-minute reading indicates that the opacity is above both the baseline level and the opacity standard then the Permittee is required to adjust the process equipment or process control equipment to bring the opacity below the baseline

level. In addition, the Permittee shall report it as excess emissions. If the Permittee finds that the visible emissions are less than the baseline opacity, then the Permittee is required to record the source of emission, date, time, and result of the test.

The Permittee is required to adopt a similar approach with fugitive dust emissions. However, rather than establishing baseline opacity level for fugitive emissions the permittee is required to conduct a visual survey of visible emissions against the 40% opacity standard.

ADEQ believes that the bi-weekly visual survey approach identified in the preceding paragraphs reasonably assure compliance with the opacity and particulate matter standards. Although no data is available to directly correlate opacity to particulate matter emissions, doing so would at least indicate potential problems with the air pollution control device. If corrective actions are taken to rectify the problems associated with the pollution control device, then compliance can be inferred on the basis that the source operates its pollution control equipment in a manner consistent with good air pollution control practices. Opacity above the baseline level but less than 40% does not hold the source in violation of the particulate matter standard, but merely requires the source to identify and alleviate the problem by taking corrective actions to reduce the opacity to less than the baseline level. However, not taking corrective actions could potentially hold the source in violation of the permit terms.

Also, it shall be noted that all references to a Method 9 observation shall be construed as meaning a six-minute observation and not a 3-hour performance test.

B. Monitoring with COMS data (for Rotary Dryer)

A 24-hr rolling average opacity of 15% is established in the permit beyond which investigation of the control equipment needs to be initiated and possible corrective action implemented. Not making such investigation and initiating possible corrective action could potentially hold the source in violation of the permit terms.

C. Monitoring of ESP data (for the Flash Fugitive Stack and the Converter Secondary Hood Stack)

Baseline values are to be established for primary voltage (volts A.C.) and primary current (amps A.C.) introduced to the ESP. Permittee is required to install instrumentation to monitor, on a daily basis, the primary voltage and amperage against the baseline ranges. If the readings are beyond the baseline ranges, investigation of the ESP needs to be initiated and possible corrective actions implemented. Not making

such investigation and initiating possible corrective action could potentially hold the source in violation of the permit terms. Although no data are available to directly correlate the baseline ranges to particulate matter emissions, doing so would at least indicate potential problems with the ESP. If corrective actions are taken to rectify the problems associated with the ESP, then compliance can be inferred on the basis that the source operates its pollution control equipment in a manner consistent with good air pollution control practices.

D. Non-Point Sources Monitoring

Non-point sources are subject to the 40% opacity standard and other Article 6 requirements. Periodic monitoring for opacity standard entails a bi-weekly visible emissions survey in accordance with an ADEQ-approved observation plan, by a certified Method 9 observer. If the visible emissions survey indicates that a Method 9 reading may be required, the observer shall do so, and maintain records of the results. Any observed exceedance of the opacity standard should be reported appropriately.

E. Fossil-fuel Fired Industrial and Commercial Equipment (non-NSPS fuel burning equipment subject to the state regulations under R18-2-724)

A. Particulate Matter

Permittee is required to keep on record the lower heating value of the fuel being fired. This recordkeeping requirement will serve as the periodic monitoring for the particulate matter emission standard.

B. Sulfur Dioxide

Permittee is required to keep on record the heating value, density, and sulfur content for the diesel fuel being fired. This recordkeeping requirement will serve as the periodic monitoring for the sulfur dioxide emission standard.

C. Opacity

A certified EPA Reference Method 9 observer shall conduct a monthly survey of visible emissions emanating from the stacks of the boilers. If the opacity of the emissions observed appears to exceed the standard, the observer shall conduct a certified EPA Reference Method 9 observation. The results of the Method 9 observation shall be maintained and excess emissions

reported.

VIII. INSIGNIFICANT ACTIVITIES

The applicant has requested that the following activities be deemed as “insignificant”. According to A.A.C. R18-2-101.54, for an activity to be deemed “insignificant”, there should be no applicable requirement for the activity. This was the basis used to determine if the activities in the following list qualify as an “insignificant” activity under Arizona law.

Activity	Determination	Justification
Non-commercial (in-house) experimental, analytical laboratory equipment which is bench scale in nature including quality control/quality assurance laboratories supporting an electric utility facility, and research and development laboratories.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Small pilot scale research and development projects.	No	These will be evaluated on a case by case basis considering size, nature and amount of emissions, and duration of project. Appropriate permits will have to be obtained as required by the regulations
Housekeeping activities and associated products used for cleaning purposes, including collected spilled and accumulated materials at the source, including operation of fixed vacuum cleaning systems for such purposes.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.a
Air conditioning, cooling, heating or ventilation equipment not designed to remove air contaminants generated by or released from associated or other equipment.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.a
General office activities, such as paper shredding, copying, photographic activities, and blueprinting, but not to include incineration.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Restroom facilities and associated cleanup operations and stacks or vents used to prevent the escape of sewer gasses through plumbing traps.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.a
Smoking rooms and areas.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Use of consumer products, including hazardous substances as that term is defined in the Federal Hazardous Substances Act (15 U.S.C. 1261, et. seq.) where the product is used at a source in the same manner as normal consumer use.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Vacuum cleaning systems where the system is used exclusively for industrial or commercial use.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j

Activity	Determination	Justification
Building maintenance and janitorial activities.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.a
Batch mixers with rated capacity of 5 ft ³ or less.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.d
Internal combustion (IC) engine driven compressors, IC engine electrical generator sets and IC engine driven water pumps used only for emergency replacement or standby service.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.h
Water treatment or storage for boiler feed water.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Water treatment or storage or cooling systems for process water.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Chemical storage associated with water and wastewater treatment where the water is treated for consumption and/or use within the permitted facility	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
The collection, transmission, liquid treatment and solids treatment process and domestic type wastewater and sewage treatment works, or treatment facilities, including septic tank systems which treat only domestic type wastewater and sewage.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Firefighting activities and training conducted at the source in preparation for firefighting.	No	Subject to A.A.C. R18-2-602
Open burning activities.	No	Subject to A.A.C. R18-2-602
Flares used to indicate danger	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Chemical storage and process holding tanks(limited to chemicals not listed in 40 CFR 68.13, chemicals listed in 40 CFR 68.13 but not stored in quantities less than threshold levels, and not subject to any applicable regulation under the Act or the Arizona Revised Rules)	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Storage and piping of natural gas or liquefied petroleum gas.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Storage and piping of butane or propane.	No	Subject to regulations under A.A.C. R18-2-730
Gasoline storage tanks with capacity of 10,000 gallons or less.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.b
Diesel fuel storage tanks with capacity of 40,000 gallons or less.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.c

Activity	Determination	Justification
Petroleum product storage tanks containing lubricating oil, transformer oil, or used oil.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Distribution and piping of diesel fuel, lubricating oil, used oil and transformer oil.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Storage and handling of drums or other transportable containers where the containers are sealed during storage, and covered during loading and unloading (includes containers of RCRA waste and used oil).	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Waste motor oil collection and recycling.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Storage tanks of any size containing exclusively soaps, detergents, waxes, greases,, or aqueous salt solutions.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Storage tanks of any size containing exclusively aqueous acid solutions and aqueous caustic solutions.	No	Subject to A.A.C. R18-2-730
Landscaping and site housekeeping equipment.	No	Subject to Article 8 regulations
Fugitive emissions from landscaping activities.	No	Subject to Article 6 regulations
Use of pesticides, fumigants, and herbicides.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Groundskeeping activities and products.	No	Subject to regulations under Article 6.
Shoveling ore to and from belt conveyors and drop boxes	No	Subject to A.A.C. R18-2-606
Air lance operations	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Mechanized or manual cleanup and haulage operations	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Concentrate reclamation	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Waste concrete handling	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Railroad track maintenance.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Potable wellfield maintenance	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Drilling and well development	No	Subject to regulations under Article 6.

Activity	Determination	Justification
Demolition, renovation and salvage operations.	No	Subject to regulations under Article 6 and/or 40 CFR 61, Subpart M
Cleanup of ditches	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Stormwater drainage control	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Cleanout of water collection sumps	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Cleanup of railcars	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Cleanup of clogged chutes	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Manual cleanup around conveyor belts and chutes.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Activities associated with the construction, repair or maintenance of roads and other paved or open areas, including operation of street sweepers, vacuum trucks, spray trucks and other vehicles related to the control of fugitive emissions of such roads or other areas.	No	Subject to A.A.C. R18-2-605
Unpaved public and private roadways within a stationary source site boundary.	No	Subject to A.A.C. R18-2-605
Road and lot paving operations at commercial and industrial facilities.	No	Subject to A.A.C. R18-2-604
Sanding of streets and roads to abate traffic hazards caused by ice and snow.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Street and parking lot striping.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Fugitive dust emissions from the operation of passenger automobile, station wagon, pickup truck or van at a stationary source.	No	Subject to A.A.C. R18-2-604
Cafeterias, kitchens and other facilities used for preparing food or beverages primarily for consumption at the source.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Equipment using water, water and soap or detergent or a suspension of abrasives in water for purposes of cleaning or finishing.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Construction and disturbance of surface areas for purpose of land development.	No	Subject to A.A.C. R18-2-604

Activity	Determination	Justification
Activities at a source associated with the maintenance, repair or dismantlement of an emission unit installed at the source, including preparation for maintenance, repair or dismantlement and preparation for subsequent startup, including preparation of a shutdown vessel for entry, replacement of insulation, welding and cutting, and steam purging of a vessel prior to startup.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Maintenance, repair or dismantlement of buildings, utility lines, pipelines, wells, and other structures that do not constitute an emission unit.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Containers, reservoirs, or tanks used exclusively in dipping operations to coat objects with oils, waxes or greases.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Manually operated equipment used for buffing, polishing, carving, cutting, drilling, machining, routing, sawing, surface grinding or turning and associated venting hoods.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.f
Individual sampling points, analyzers, and process instrumentation, whose operation may result in emissions.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Individual equipment that is transportable or activities within a facility established for testing units prior to sale or for purposes of research.	No	Case by case.
Individual flanges, valves, pump seals, pressure relief valves and other individual components that have the potential for leaks.	No	Subject to A.A.C. R18-2-730
Brazing, soldering or welding operations.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Battery recharging areas.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Aerosol can usage.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Plastic pipe welding.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Acetylene, butane and propane torches.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Architectural painting and associated surface preparation for maintenance purposes at individual or commercial facilities.	No	Subject to A.A.C. R18-2-727
Steam vents, condenser vents and boiler blowdown	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Equipment used exclusively for portable steam cleaning.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j

Activity	Determination	Justification
Blast-cleaning equipment using a suspension of abrasive in water and any exhaust system or collector serving them exclusively.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Surface impoundments such as ash ponds, cooling ponds, evaporation ponds, settling ponds and storm water ponds.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Pump/motor oil resevoirs, such as gear box lubrication.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Transformer vents.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Lubrication system vents.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Hydraulic system reservoirs.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Adhesive use which is not related to production.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Caulking operations that are not part of a production process.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Electric motors.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Cathodic protection systems.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
High voltage induced corona.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Production of hot/chilled water for on-site use not related to any industrial application.	No	Subject to A.A.C. R18-2-724
Safety devices such as fire extinguishers.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Soil gas sampling.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Filter draining.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
General vehicle maintenance and servicing activities at the source.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Station transformers.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Circuit breakers.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j

Activity	Determination	Justification
Generation unit gas vents.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Storage cabinets for flammable products.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Fugitive emissions from landfill operations.	No	Subject to A.A.C. R18-2-730
HVAC (Heating Ventilation Air Conditioning) vents.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Oxygen plant vents	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
Gas turbines and stationary reciprocating internal combustion engines of not more than 325 aggregate brake horsepower	No	Subject to A.A.C. R18-2-719.
Gas turbines and stationary reciprocating internal combustion engines that are emergency or standby units.	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.h
Each individual piece of fuel burning equipment, other than internal combustion engines, which is fired at a sustained rate of not more than 500,000 Btu/hr for any eight hour period.	No	As long as the aggregate firing rate of all such pieces of equipment is greater than 500,000 Btu/hr, they are subject to A.A.C. R18-2-724.
Fuel combustion emission units and direct combustion units designed and used for comfort heating purposes or hot water for personal hygiene.	No	As long as the aggregate firing rate of all such pieces of equipment is greater than 500,000 Btu/hr, they are subject to A.A.C. R18-2-724.
Water heaters, space heaters, and forges	No	As long as the aggregate firing rate of all these pieces of equipment is greater than 500,000 Btu/hr, they are subject to A.A.C. R18-2-724.
2600 gal Drewspence 738 storage tank (DR-1, North of AP by Cooling Tower)	No	R18-2-730.D,F &G
1600 gal Drewspence 738 storage tank (DR-2, North of AP by Cooling Tower)	No	R18-2-730.D,F &G
7500 gal Caustic Soda Tank (CS-1, SW of powerhouse)	No	R18-2-730.D,F &G
12000 gal Caustic Soda Tank (CS-2, SW of powerhouse)	No	R18-2-730.D,F &G
10178 gal Caustic Soda Tank (CS-3, SW of powerhouse)	No	R18-2-730.D,F &G
Liquid oxygen tanks (3- oxygen plant)	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j

Activity	Determination	Justification
5050 gal soda ash tank (SD-2- Powerhouse cooling tower)	Yes	Insignificant pursuant to A.A.C. R18-2-101.57.j
200 gal Chlorine tanks (AP Cooling tower, Powerhouse)	No	R18-2-730.D,F &G
8000 gal Isopropyl alcohol (IA-1, Rod Plant)	No	R18-2-730.D,F &G